

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

12/13/99
1994
U.S.
PTO

Inventors: Naoyasu MIYAGAWA, et al. Prior Art Unit: 2753
Application No.: Continuation Application Prior Examiner: N. Hindi
of Serial No. 08/396,981,
filed March 1, 1995
Filed: December 13, 1999
For: OPTICAL RECORDING/REPRODUCING APPARATUS FOR
OPTICAL DISKS WITH VARIOUS DISK SUBSTRATE THICKNESS

A
RT
jc511 U.S. PTO
09/460223
12/13/99


CONTINUATION REISSUE APPLICATION TRANSMITTAL

Assistant Commissioner of Patents
Washington, DC 20231

Sir:

Attached is a continuation application of reissue application no. 08/396,981. The following documents form a part of this submission:

1. A specification including:

Twenty-three (23) page specification

Twenty-eight (28) claims

Eighteen (18) sheets of informal drawings (Figs. 1-2, 3A-3B, 4A-4B, 5-8,
9A-9B, 10-17 and 18A-18B)

Abstract

2. Copy of original Declaration from 08/396,981.
3. Preliminary Amendment (canceling original claims 1-24)
4. Information Disclosure Statement with PTO-1449
5. Confirmation Claim for Priority

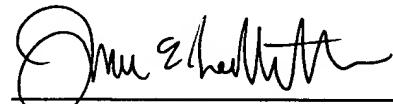
CALCULATION OF FILING FEES

(after cancellation of original claims by the attached preliminary amendment)

Basic Filing Fee	= \$ 760.00
Total Claims 4 (Filed) - 20 (Allowed) = 0 (Extra) x \$18.00	= \$ 0.00
Independent Claims 4 (Filed) - 3 (Allowed) = 1 (Extra) x \$78.00	= \$ 78.00
Total Filing Fee	= \$ 838.00

Please charge any deficiency in the Filing Fee to Deposit Account No. 19-4375.

Respectfully submitted,



James E. Ledbetter
Registration No. 28,732

Date: December 13, 1999

JEL/lrh

ATTORNEY DOCKET NO. JEL 28567RE-D

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CONFIRMATION CLAIM FOR PRIORITY

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

The benefit of the filing date of the following foreign application filed in the following foreign country and priority provided in the 35 USC §119 have been claimed for the above-identified application:

**JAPANESE PATENT APPLICATION NO. 02-212537
FILED August 9, 1990**

**JAPANESE PATENT APPLICATION NO. 02-285006
FILED October 22, 1990**

**JAPANESE PATENT APPLICATION NO. 03-044798
FILED March 11, 1991**

Certified copies of these priority documents were filed on February 6, 1992 in parent application serial no. 07/740,629 filed August 5, 1991 (USPN 5,235,581, issued August 10, 1993), and acknowledged by the Patent Office in paper no. 4 (mailed August 17, 1992) of the parent application.

It is requested that the file of this application be marked to indicate that the requirements of 35 USC §119 have been fulfilled and that the Patent and Trademark Office kindly acknowledge receipt of these papers.

Respectfully submitted,



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Date: December 13, 1999

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US005235581A

United States Patent [19]

Miyagawa et al.

[11] Patent Number: 5,235,581

[45] Date of Patent: Aug. 10, 1993

JC511 U.S. PTO
09/460223
12/13/99

[54] OPTICAL RECORDING/REPRODUCING APPARATUS FOR OPTICAL DISKS WITH VARIOUS DISK SUBSTRATE THICKNESSES

[75] Inventors: Naoyasu Miyagawa, Saita; Yasuhiro Gotoh, Kadoma, both of Japan

[73] Assignee: Matsushita Electric Industrial Co., Ltd., Osaka, Japan

[21] Appl. No.: 740,629

[22] Filed: Aug. 5, 1991

[30] Foreign Application Priority Data

Aug. 9, 1990 [JP] Japan 2-212537
 Oct. 22, 1990 [JP] Japan 2-285006
 Mar. 11, 1991 [JP] Japan 3-044798

[51] Int. Cl. 5 G11B 7/00

[52] U.S. Cl. 369/44.12; 369/112; 369/44.23; 369/58

[58] Field of Search 369/44.11, 44.12, 109, 369/112, 118, 44.23, 44.24, 94, 93, 95, 58, 44.37; 250/201.5, 227.11

[56] References Cited

U.S. PATENT DOCUMENTS

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 4,937,808 6/1990 Shimada et al. 369/44.11
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0252445 1/1988 European Pat. Off. .

0327033 8/1989 European Pat. Off. .

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[57] ABSTRACT

An optical disc apparatus for recording, reproducing or erasing an information signal by converging a light flux onto a recording layer through a transparent substrate. The apparatus includes one or a plurality of optical heads having a plurality of objective lenses whose aberrations have respectively been corrected for a plurality of disc substrates of different thicknesses, a cartridge for enclosing the optical disc, a discrimination hole which is formed on the cartridge, and a sensor for detecting the opening/closing state of the discrimination hole and for generating a discrimination signal. In accordance with the result of the discrimination as to the thickness of the loaded optical disc, the objective lens, in which the occurrence of the aberration is smallest, is used, so that the information signal can preferably be recorded, reproduced or erased onto/from the optical discs having different substrate thicknesses. Instead of an optical head having objective lenses, an optical head having a waveguide and a plurality of converging grating couplers whose aberrations have respectively been corrected for a plurality of disc substrates of different thicknesses is provided to achieve the same object.

24 Claims, 18 Drawing Sheets

